

## **DISCHARGES OF PRODUCED WATER TO THE TERRITORIAL SEAS**

### **PRODUCED WATER STUDY MINIMUM REQUIREMENTS**

#### **1.0 Study Objectives**

1. Evaluate the bioaccumulation of chemicals associated with produced water discharges to the territorial seas by recreationally- and commercially-important aquatic organisms present at (or near to) discharging and non-discharging platforms;
2. Evaluate the potential health risks associated with the consumption of recreationally- and commercially-important aquatic organisms resident at discharging and non-discharging platforms;
3. Evaluate impacts of produced water discharges to the aquatic ecosystem;
4. Evaluate the areal extent of environmental impact (i.e., sediment toxicity) of produced water discharges; and
5. Characterize produced water effluents based on an expanded list of chemical analytes to allow for an assessment of the adequacy of the current permit requirements and limitations.

#### **2.0 Sampling and Analysis Protocols**

The collection of sediment samples for chemical analysis and toxicity testing shall be conducted in accordance with current EPA guidelines.

Biota samples shall be collected in accordance with the *Protocol for Issuing Public Health Advisories for Chemical Contaminants in Recreationally Caught Fish and Shellfish* (LDHH, LDEQ, LDWF, LDAF 2011).

The analyte list: for the analysis of produced waters, sediment, and tissue should include the chemicals of concern (COC) known to be associated with produced waters. These COC include:

Petroleum Hydrocarbons C <sub>6</sub> – C <sub>35</sub>	EPA SW846 Method 8015 or Texas Method 1006
Volatile Organic Chemicals	benzene, toluene, ethylbenzene, xylene
Semivolatile Organic Chemicals	naphthalene, fluorene, anthracene, phenanthrene, fluoranthene, pyrene, benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenzo[a,h]anthracene, C1-naphthalenes, C2-naphthalenes, C3-

	naphthalenes, C4-naphthalenes, C1-fluorenes, C2-fluorenes, C1-phenanthrene/anthracene, C2-phenanthrene/anthracene, C3-phenanthrene/anthracene, C4-phenanthrene/anthracene, and total phenol
Metals	lead, thallium, arsenic, barium, cadmium, mercury, chromium, copper, zinc, vanadium, and nickel
NORM	radium-226 and radium-228

The data quality objectives should be identified for each medium and receptor of concern and should address issues relevant to the assessment of bioaccumulation, human health risks, and ecological risks.

**The additional components of the study will be published within 30 days.**